METHOD AND SYSTEM FOR CONTROLLING AN OPERATOR INTERFACE WITH DISPLAY FIELDS CONTAINING GRAPHICS AND TEXT

The present invention relates to a method for controlling an operator interface of a computer-controlled system, particularly of a high-performance printer, whereby a computer processes a control panel program, which defines an operator interface on a monitor, whereby a plurality of display fields are provided on the operator interface, which display fields respectively contain graphics elements and text. Further, the invention relates to a system for purposes of controlling such an operator interface.

Description of the Related Art

In order to facilitate the operation of a computer-controlled system, for example of a high-performance printer, display fields, apart from an explanatory symbol for a function, also contain an explanatory text. While the graphics in these display fields can be kept for countries of different language, it is expedient, for a better understanding, to provide the text in the respective language. In the prior art, a bitmap is prepared for each display field, which bitmap defines pixels corresponding to the display image to be displayed together with the text and is stored upon request. When the computer-controlled system is sold in many countries of world, an extremely great number of bitmaps must be available, which contain the multilingual texts. Therefore, large memory requirements are necessary for such a solution. Another disadvantage is that it takes relatively long for an image to be build up within a display field given the currently normal relatively high pixel density, although the processors are fast, so that the user experiences less comfort with respect to the menu prompting.

An image output device is known from "Patent Abstracts of Japan" with the publication number JP 07164685 A, whereby bits of information are displayed on a LCD-display. Menu texts that are present in a plurality of language versions are

selected by means of a switching unit and are displayed on the display. The size of the display is adjusted dependent on the selected language.

"IMB Technical Disclosure Bulletin", vol. 37, No. 065, June 1994, page 461 through 463 discloses a method for controlling an operator interface, whereby an operator can select a language among texts in a plurality of languages after a system has been started. The selected language is displayed in a window, which displays further bits of information about an application program.

WO 94/11804 A1 describes an "user interface", which displays status information of a printer. Texts to be displayed are provided in files. A computer-supported sequencer accesses these text files in order to display these.

German Patent Document

DE 195 18 367 A1 describes a method for storing and playing back a supply of fixed screen texts. The operator can be guided by means of the screen texts in a plurality of languages. Text parts that are language-independent are combined with language-dependent variable texts in order to be able to display a complete text on the screen.

Further, WO 94/27229 A1 describes an operator interface, whereby text elements or ~~[sic]~~ graphic elements are simultaneously displayed on a screen. Text parts and graphics parts can be stored in different areas and are combined given the representation on the screen.

Summary of the Invention

The present invention is based on the object of ~~proposing~~ providing a method and a system for controlling an operator interface, whereby the graphics elements and texts in different languages to be displayed in the display fields are built up fast and whereby the memory requirements are low.

The present invention proposes a method for purposes of controlling an operator interface of a computer-controlled system, whereby a computer processes a control panel program, which defines an operator interface on a screen, whereby a plurality of display fields are provided on the operator interface, which respectively contain graphics elements and text, whereby a graphics bitmap is stored for each display field, which graphics bitmap contains pixels corresponding to the graphics element to be displayed; a plurality of language versions are stored in text files for the text of each display field; one single language is selected for the texts of all display fields depending on an input instruction; the graphics bitmap that belongs to every display field is loaded into the main memory of the computer; text files of the selected language are accessed; and text pixels and pixels of the graphics bitmap are represented together given the display of the display field.

According to the invention, the pixels that are to be displayed in total in the display field are divided. On one hand, the pixels are defined by means of a graphics bitmap that does not contain text pixels but only graphics elements. Other pixels that belong to the texts are generated by means of the graphics controller to which the respective text is supplied. This text is stored in a plurality of languages in a plurality of text files. When a specific language is now selected, the pixels of the graphics bitmap are displayed in the display field and the text pixels are added according to the selected text file. Therefore, merely one graphics bitmap, whose pixels are combined with the pixels of the selected language of the text, must be provided for each display field. When the control panel program is activated and a language change is made, merely a new text file with the corresponding language must be accessed - the graphics bitmap can be kept. Thus, the image buildup for a display field is also accelerated, since merely the pixels of the text must be combined with the already present pixels of the graphics bitmap.

In a preferred exemplary embodiment of the invention, the graphics bitmaps are stored in a ROM-component. Given a call of a menu of the operator interface, all graphics bitmaps of this menu are loaded into the main memory and remain there as long as the display fields are needed for the menu and for further menus. When the language is changed, loading processes are thus foregone for the graphics bitmaps and the image buildup can be speeded up.

According to a further aspect of the invention, a system for purposes of controlling an operator interface of a computer-controlled system is proposed, whose features ~~are defined in claim 6~~. The advantages that have already been described in connection with the inventive method derive as a result of this system.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is subsequently further explained upon reference to the drawing. ~~Shown are:~~

Figure 1 is a screen view of a traditional operator interface with texts in the English language,

Figure 2 is a screen view of a similar operator interface, whereby the display fields still contain texts in the English language, but the further texts are in the German language,

Figure 3 is a diagram showing schematically the editing of text files and graphics data, and

Figure 4 is a pair of flowcharts for the program start of the control panel program and for the language changeover.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figure 1 schematically shows a screen 10, on which a control panel program generates an operator interface. The screen 10 is fashioned as TFT (thin film transistor) display, i.e. that it is a LCD

screen, whereby the individual pixels are driven by means of vapor-deposited transparent horizontal and vertical interconnects. The thin film transistors (TFT) that are additionally arranged for each pixel at the cross points purposefully switch-on and switch-off the electrical fields for the polarisation of the anisotropic liquid. Optical highly qualitative images can be generated in this way.

Display fields 12 through 26 are present in a first row of the screen 10, which display fields ~~respectively~~ that contain a graphics element and text. The screen 10 is further fashioned as a sensor screen, i.e. that touch-sensors are disposed under the display fields 12 through 26, which touch-sensors recognize the touching by means of a pen or a finger. Given operating of one of the display fields 12 through 26, the control panel program branches into a corresponding menu, in which the operator can input different parameters, in which bits of information are displayed (display field 24) or via which the computer-controlled system - a high-performance printer in the present case - can be switched in the off-state (display field 26). The display fields 12 through 26 contain symbols as graphics elements, which symbols indicate the function of the menu called by the control panel program.

Rectangular ~~displays 28, 30, 32~~ displays 28, 30 and 32, which exclusively contain texts, are provided below the display fields 12 through 26. Further, a text field 34 is displayed, which indicates the status of the high-performance printer. A parameter field 36, which shows operating parameters, is provided in the lower image part of the screen 10. As can be seen from Figure 1, all texts that are shown at the screen are in English. However, it is desirable that the texts to be displayed are in the language of the location depending on the location where the high-performance printer is installed.

Figure 2 shows a version of the operator interface, whereby the texts are displayed in German in the sections 28 through 36. Such a representation is relatively simple to manage, since the display of texts can be managed relatively fast with the aid of the

graphics controller, whereby corresponding text files are accessed. However, it can be recognized that the text elements in the display fields 12 through 26 are still in the English language, since it is relatively difficult to only modify the text portion in images with graphics elements. Given a display according to Figure 2, the ~~comfort is therefore reduced for the operator~~ operator may not be comfortable with the display, since he must read the menu in two languages.

In the left image part, Figure 3 shows the editing of text files with different languages. Each text file with identical bits of information, for example with the term "paper" receives the same access number, 302 for example. When the operator selects a language, for example English or German, the text file of the same number - the number 302 in the present case - is accessed and this text is represented in the display field together with the graphics. It can be recognized in the right image part that the text "paper" is faded-in from the corresponding text file with the number 302 with respect to the graphics part, which shows a paper web given the selected language English. The display field with the language German can be seen therebelow. The text file with the number 302 is also accessed. As a result of the fixed language German, the term "Papier" is now displayed on the display field. It is to be noted that the graphics part need not be reloaded but remains unchanged. Merely the respective text in the chosen language is faded-in.

Figure 4 shows flowcharts given the program start and given a change of the language. According to strep 40, the texts are initially loaded into the main memory corresponding to the selected language 1. Subsequently, the graphics bitmaps for the different display fields are loaded (step 42) and all display fields are displayed on the screen (step 44), i.e. that texts and graphics bitmaps are superimposed and are represented together.

The right image part shows process steps 50 through 54, as they are applied when the language is changed. For example, it is changed from the language 1 to the language

2 in the step 50. This changing ensues by means of inputs of the user after the application menu has been called, i.e. that an application menu is called after the display field 22 has been touched and the application menu is branched into a language changeover menu from there. According to step 52, the texts of the newly selected language stored in the text files are loaded into the main memory. After these texts have been transformed into pixels by means of the graphics controller, they are displayed together with the graphics bitmaps, which were still kept in the main memory, whereby the windowing technique is applied for the representation in general.

INSAG 1a6

Reference character list

10	screen
12 -26	display fields
28 - 32	displays
34	text field
36	parameter field
~~40 - 54~~	~~method steps~~